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Dam Removal: An Economic Taxonomy

Mark Smith
Colorado College

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Mark Smith
Professor of Economics, Economics and Business Department
Colorado College, 14 E Cache la Poudre St.
Colorado Springs CO 80903
Ph: (719) 389-6411
Fax: (719) 389-6927
msmith@ColoradoCollege.edu

Causal observers of dam removal activity in the United States are most likely familiar with the three most widely publicized removal or proposed removal projects – the Edwards Dam on the Kennebec River in Maine (removed), the Elwah and Glines Canyon Dams on the Elwah River in Washington (planned) and the proposed removal or breaching of dams on the lower Snake River along the Oregon-Idaho border. While these removal projects involve medium to large scale dams, most of the actual removal activity involves small, run-of-river dams whose economic usefulness has long past. Thus dam removal involves projects extending from those with small removal costs and clear, local benefits to high removal costs and uncertain benefits extending over an entire river basin.

The American Society of Civil Engineer's has recently initiated a series of workshops, aimed at the civil engineering community, to address the major issues associated with dam removal. As the speaker on the economic aspects of dam removal at a recent workshop in this series, it became apparent to me that clarification of dam removal's economic issues would make an important contribution to the dialogue among economists, civil engineers, biologists, environmentalists, state officials, and others involved in the dam removal process.

This paper proposes taxonomy of dam removal projects – from the simple to the complex. The dimensions of this dam removal taxonomy include: (1) small to large; (2) run-of-river to over-year storage; (3) low to high removal costs: (4) existing dam a liability to existing dam a benefit; (5) removal generates market benefits to removal generates non-market benefits; (6) primarily on site benefits to primarily off-site benefits; (7) sediment movement a benefit to sediment movement a cost; (8) removal benefits certain to removal benefits uncertain; (9) removal benefits occur sooner versus later; (10) dam is single purpose to dam is multipurpose. Dams at one end these scales are easy to evaluate, those at the other are far more complex.

By explicitly identifying the dimensions that complicate dam removal decisions, this paper aims to clarify how these project parameters affect net economic benefits and thus improve communication among the many other disciplines involved in such projects.